

SUPPORT FOR THE AMENDMENTS

The specification has been amended to recite a claim of priority to related International and German patent applications, as set forth in the originally filed Application Data Sheet. In addition, the specification been amended to include appropriate section headings and a substitute abstract to address the Examiner's objections to the originally filed specification and abstract. The specification has also been amended to capitalize the trademarks described therein, as suggested by the Examiner.

The present amendment amends claims 1-5, and adds new claims 9 and 10.

Claims 1-5 have been amended to address the Examiner's claim objections.

Support for the amendment to claim 1 is found at specification page 2, lines 30-38, page 3, lines 1-3, and page 6, lines 1-5.

Support for the specification and claim amendments is found in the specification and claims as originally filed.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 1-7, 9 and 10 are currently pending in the present application. Claims 1-5 have been amended, and new claims 9 and 10 have been added, by the present amendment.

Applicants wish to extend their appreciation to Examiner Walters and Supervisory Examiner Kim for the helpful and courteous discussion held on May 27, 2008, with their undersigned Representative. During the meeting, the prior art rejections were discussed. The content of this discussion is reflected in the remarks set forth herein.

The rejections of claims 1-7 under 35 U.S.C. § 103(a) as being obvious over Yutaka (English Abstract of JP 60-109894) in view of Dyllick-Brenzinger (U.S. 6,132,558) is respectfully traversed with respect to claims 1-7, 9 and 10.

Amended claim 1 is directed to a process for improving the printability of paper and paper products by enhancing the water resistance of ink-jet printed images, wherein the process comprises treating the paper or paper products with aqueous solutions of cationic polymers comprising vinylamine units and having a charge density of at least 3 meq/g as the sole treatment composition in aqueous solution, wherein the sole treatment composition is applied in an amount from 0.05 to 5 g/m<sup>2</sup> to the surface of the paper or the surface of the paper product.

Unlike the claimed invention, which involves enhancing the *water resistance of ink-jet printed images* to thereby improve the printability of paper and paper products, Yutaka describes a method for enhancing the *water resistance of ink jet recording paper* comprising treating the paper with an aqueous solution comprising a mixture of 95-50 wt. % dimethyldiallylammonium chloride and 5-50 wt. % ethyleneimine cationic polymers having allylammonium units and vinylamine units, respectively, wherein the mixture is applied in an amount of from 0.1 to 2.5 g/m<sup>2</sup> to the surface of the paper. Yutaka fails to describe the charge density of the cationic polymers comprising vinylamine units, as acknowledge on page 5, line 7, of the Official Action. Moreover, Yutaka describes treating the paper with a mixture of cationic polymers having allylammonium units and vinylamine units. Therefore, Yutaka fails to provide sufficient motivation and guidance

to a skilled artisan to improve the printability of paper and paper products by enhancing the water resistance of ink-jet printed images, wherein the process comprises treating the surface of the paper or paper products with aqueous solutions of cationic polymers comprising vinylamine units and having a charge density of at least 3 meq/g as the sole treatment composition.

Unlike the claimed invention, Dyllick-Brenzinger describes increasing the rate of draining raw material pulps in a process for producing paper and cardboard comprising adding two different cationic polymers to the raw material pulps, wherein the cationic polymers may consist of partially and/or completely hydrolyzed cationic polymers of N-vinylformamide having a charge density of 4-18 meq/g (See e.g., column 1, lines 61-67, column 2, lines 1-12, column 5, lines 30-32, and column 6, lines 12-21).

Yutaka and Dyllick-Brenzinger, when considered alone or in combination, fail to disclose or suggest the claimed process for improving the printability of paper and paper products by enhancing the water resistance of ink-jet printed images, wherein the process comprises treating the surface of the paper or paper products with aqueous solutions of cationic polymers comprising vinylamine units and having a charge density of at least 3 meq/g as the sole treatment composition. Even if sufficient motivation and guidance is considered to have been provided by Yutaka and/or Dyllick-Brenzinger, to arrive at the claimed process, which is not the case, such a case of obviousness is rebutted by a showing of superior properties and secondary considerations.

As discussed in the present specification, conventional paper (e.g., ink-jet paper) suffers from running of the inks into unprinted regions of the paper (a.k.a., wicking) and into one another (a.k.a., bleeding) upon exposure to moisture or liquid (See e.g., page 1, lines 34-41, page 2, lines 1-9, and page 6, lines 11-17). Accordingly, there has been a long-felt need to improve the printability of paper and paper products by enhancing the water resistance of the ink-jet printed images, whereby the ink-jet printed images do not exhibit wicking and bleeding upon exposure to moisture or liquid. Based on the limited disclosures of Yutaka and Dyllick-Brenzinger, and the conventional

papers described therein, other skilled artisans have failed to discover a solution to this long-felt need.

As discussed in the present specification and shown by the comparative experimental data presented in Table 1 therein, Applicants have discovered that superior properties with respect to improved printability of paper and paper products and suppressed wicking and bleeding due to enhanced water resistance of the ink-jet printed images are unexpectedly exhibited by treating the surface of the paper and paper products with aqueous solutions of cationic polymers comprising vinylamine units and having a charge density of at least 3 meq/g as the sole treatment composition in accordance with the present invention (Examples V-IX), as compared to the inferior properties exhibited by the conventional treatment compositions, which contain the dimethyldiallylammonium chloride cationic polymer having allylammonium units of Yutaka (comparative Example I) or a cationic polymer having a charge density of only 1.5 meq/g (comparative Example IV) (See e.g., page 3, lines 1-3, page 6, lines 19-40, page 6, lines 11-34, and page 9, Table 1).

This evidence clearly demonstrates that superior properties with respect to improved printability of paper and paper products and suppressed wicking and bleeding due to enhanced water resistance of the ink-jet printed images are remarkably exhibited by treating the surface of the paper and paper products with aqueous solutions of cationic polymers comprising vinylamine units and having a charge density of at least 3 meq/g as the sole treatment composition.

Withdrawal of this ground of rejection is respectfully requested.

The objection of the specification, abstract and claims 1-5 is obviated by amendment.

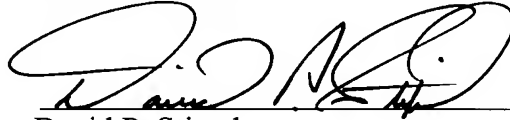
Withdrawal of these grounds of objection is respectfully requested.

Applicants acknowledge the Examiner's comments on page 2 of the Official Action in regard to the use of trademarks in the specification. Accordingly, Applicants have amended the specification to capitalize the trademarks described therein. Applicants respectfully submit that the present specification includes sufficient generic descriptions for these trademarks.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

A handwritten signature in black ink, appearing to read "David P. Stitzel", is written over a horizontal line.

David P. Stitzel  
Attorney of Record  
Registration No. 44,360

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)